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Implementing an Evidence-Based Fall Tool in Long-Term Care

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IMPLEMENTING AN EVIDENCE-BASED FALL TOOL IN LONG-TERM CARE

by

Tasha Hannah

A Doctoral Project
Submitted to the Graduate School,
the College of Nursing and Health Professions
and the School of Leadership and Advanced Nursing Practice
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

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ABSTRACT

In the elderly, falls account for one of the most common and severe issues contributing to a disability. Falls are a significant public health issue associated with increased morbidity and mortality risks. In the U. S., the falling mortality rate has grown steadily by over 30% in the past ten years (Centers for Disease Control and Prevention [CDC], 2020).

The project aimed to educate the staff and introduce an evidence-based fall prevention program to the staff at WMCNH to reduce falls and injuries to vulnerable residents. The DNP student presented the STEADI educational session regarding elderly falls, risk factors, and prevention of falls. STEADI handouts and pamphlets were provided to the staff as a resource.

The nurses' knowledge increased in fall prevention based on the post-test scores. The TUG, STEADI algorithm, and the Stay Independent questionnaire are beneficial in screening and assessing the elderly for fall risks and risk factors. The nurse (N=8) pretest score was 81.63 with an SD of 16.10, and the posttest score was 90.88 with an SD of 12.60. The two-tailed P value equals 0.1705, t=1.52, df = 7, and CI =95%.

STEADI provides health care personnel with a guide to implementing a standardized evidence-based fall procedure in different healthcare settings. The STEADI guide helps to screen, assess, and intervene to reduce or minimize falls in the elderly (Lee, 2017). Implementing an evidence-based fall tool in long-term care allows healthcare personnel to review falls more comprehensively and holistically.

ACKNOWLEDGMENTS

DEDICATION

I would like to thank my family for being so patient with me throughout this journey. Without you all, this day would not be possible. A special thanks to my significant other, Mohammah Hickman for all his support. My true dedication is to my boys, Tylan Mikel Glenn and Deniguel Nami Glenn. Tylan, your life was short-lived. I thank God each day for the time he gave me with you. You will forever be in my heart and your memories live within me. Jeremiah 29:11 – "For I know the plans I have for you," declares the LORD," plans to prosper you and not to harm you, plans to give you hope and a future."

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LIST OF ABBREVIATIONS

AGS   American Geriatric Society

BGS   British Geriatric Society

CDC   Centers for Disease Control and Prevention

CI   Confidence Interval

CNA   Certified Nursing Assistant

DF   Degree of Freedom

DNP   Doctor of Nursing Practice

E.D.   Emergency Department

LPN   Licensed Practical Nurse

LTCF   Long-term Care Facility

N   Number

NCOA   National Council of Aging

NICE   National Institute of Clinical Evidence

RN   Registered Nurse

SD   Standard Deviation

STEADI   Stopping Elderly Accidents, Deaths, and Injuries

TUG   Timed Up and Go

U.S.   United States

USM   The University of Southern Mississippi

WHO   World Health Organization

WMCNH   Winston Medical Center Nursing Home

CHAPTER I – INTRODUCTION

Background

A common occurrence in the elderly is falls and falls account for potential disability in the elderly due to injury and trauma. Falls are a significant public health issue. In the elderly, there is increased mortality from falls related to traumatic brain injuries and hip fractures regardless of sex, race, or ethnicity (Vaishya & Vaish, 2020). Falls are a significant public health issue associated with increased morbidity and mortality risks.

According to the National Council on Aging (NCOA, 2022), falls cause over 95% of hip fractures and account for the increased number of traumatic brain injuries in the United States (U.S.). In 2015, nonfatal fall costs were $50 billion, and fatal falls were $754 million. The cost of treating falls in the elderly will increase to over $101 billion by 2030.

In the U.S., the mortality rate has increased among the elderly aged 65 by 30 percent in the last 10 years (CDC, 2020). In 2018, 25% of elderly aged 65 years or older suffer fatal and nonfatal injuries related to falls (CDC, 2021). These falls total approximately 36 million in the elderly aged 65 and over. The goal is to implement an evidence-based fall reduction guide to assist organizations in minimizing or reducing elderly falls that cause injuries, increase health costs, and improve quality of life.

Stopping Elderly Accidents, Deaths, and Injuries (STEADI) is an initiative that was developed by the U.S. Centers for Disease Control and Prevention's National Center for Injury Prevention and Control to minimize falls. The platform was developed by the American Geriatrics Society/British Geriatrics Society (AGS/BGS).

The guidelines were developed based on the health behavior theory. Utilizing the proposed guidelines offers providers a theoretical framework to refer to as a guide in decreasing falls in the elderly (Johnston et al., 2019). STEADI includes three parts: screening patients to recognize factors that place the patient at fall risk, assessing the modifiable factors, and the action phase, intervention, to minimize fall risk (Lee, 2017). These elements can considerably influence fall reductions, improve health outcomes, and reduce healthcare expenditures (CDC, 2020)

<center>Significance</center>

In the elderly population, falls are of high risk, potentially causing injuries (Sharif et al., 2018). "The World Health Organization defines falls as "an event that causes a person to rest on the ground" inadvertently, "floor or other lower level" (World Health Organization [WHO], 2022, n.p.). Sharif et al. (2018) defined falls as "accidental events in which a person falls when their center of gravity is lost, and no effort is made to restore balance or when this effort is ineffective" (p. 1). An estimated 30% of elderly individuals fall yearly (Meucci et al., 2019).

The Centers for Disease Control and Prevention Injury Center (CDC, 2017), states that the leading cause of unintended death is related to falls in those 65 years of age and older. Guirguis-Blake et al. (2018) state that elderly residing in a facility reported falling in 2014 and accounted for 28.7% of falls. Residents living in long-term care (LTC) facilities typically: (a) are older, (b) have multiple health issues, (c) take numerous medications, and (d) have limited mobility. The aforementioned factors create fall risk factors in residents (Nitz et al., 2012). Fall and fall-related

injuries cause harm and may result in admission to healthcare facilities (Murphy, 2012).

<div align="center">Problem Statement</div>

One of the most common problems among the elderly is falling. The emergency department (E.D.) treated three million nonfatal fall injuries among those over age 65 in the U.S. (Severence et al., 2022). Falls are associated with high healthcare costs and reduced quality of life. The elderly are hospitalized for falls "five times more often for fall-related injuries than from other causes" (Murphy, 2012, p. 63).

Aging is a normal physiological process and brings inevitable physical changes to the human body. As individuals age, the body begins to decline, bodily and functional changes occur, skin loses its elasticity, and there is a decrease in bone density. The elderly begin to experience gait and balance problems, cognition diminishes, and muscle mass, strength, vision, and hearing loss. Age is one of the vital risk factors for falls.

Falls are attributed to many intrinsic and extrinsic factors. Intrinsic factors are age, cognitive and sensory impairments, chronic health conditions, gait, strength, and balance deficits. Extrinsic factors can include medicines an individual ingests, the type of shoes the individual wears, mobility aids, and alcohol or drugs (Vaishya & Vaish, 2020).

The main cause of disease, death, and debility in the elderly falls according to Berkova and Berka (2018). Phelan et al. (2015) report that falls significantly threaten older adults' quality of life. According to Meucci et al. (2019), "decline of physical,

cognitive, and affective capabilities, as well as comorbidities and frailty, leave individuals prone to falls" (p. 366). Fall prevention aims to reduce the risk and rate of falls for the elderly at risk of falling. Preventing falls is an essential public health issue to mitigate or minimize fatal trauma or injuries.

Available Knowledge

Individuals who cannot live independently sometimes reside in nursing homes. The elderly have chronic conditions such as hypertension, hyperlipidemia, arthritis, and dementia. Vulnerable populations are at high risk for poor health, Vulnerable residents sometimes have learning disabilities and mental health problems. These persons may be older people or people with a physical disability or impairment.

Individuals at risk for falling include those with a history of falling, those who use devices to aid them with transferring or ambulating, the environment, and a variety of health conditions (Sharif et al., 2018). Falls can be contributed to drug or alcohol use, an individual's fear of falling, gait and balance issues, inactivity, or factors in the home setting including loose rugs, level differences, and slippery floors (Oliveira et al., 2018). Identifying factors that put individuals at risk for falls is essential to eliminate and reduce occurrences such as trauma, injuries, or death.

Needs Assessment

A small rural town in Central Mississippi has two long-term care nursing homes and one senior care facility. The Winston Medical Center Nursing Home (WMCNH) is a 120-bed facility connected to the hospital. The town has two other facilities too. Another facility, Louisville Healthcare, is a 60-bed nursing home

facility, and Bee Hive Home is a senior care assisted living facility. Approximately 17,700 people live in Winston County (U.S. Census Bureau, 2021).

The WMCNH does not have a standardized, evidence-based fall prevention protocol/policy to identify those residents at risk for falls before the incident. The facility's "Fall Procedure" policy was implemented in 2004 and revised in 2014. The policy's purpose is to ensure that proper procedure is followed with each fall by staff members who are licensed nurses and certified nursing assistants. Falls in the facility are common, and the numbers vary monthly, with the most recent falls of 96 in six months. There were no significant injuries, trauma, or mortalities. Most falls in the facility occurred among residents with Alzheimer's disease.

An evidence-based fall prevention tool is needed in long-term care to prevent and reduce falls. By executing an evidence-based fall tool, there will be decreased injuries related to falls, decreased costs, and reduced morbidity and mortality. The Doctor of Nursing Practice (DNP) project aims to increase knowledge and awareness about elderly falls.

<center>PICO</center>

This DNP project aims to improve the quality of care at a long-term facility by implementing an evidence-based fall prevention program. The STEADI provides the necessary resources to assist healthcare personnel in the process of screening, assessing, and intervening to reduce fall risk in those older than 65 years of age. Elderly residents at risk for falls in a long-term rural facility (P), can an evidence-based practice fall prevention guideline (I), when compared to standard fall guideline (C), reduce fall risk in elderly patients (O)?

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Purpose and Objective

The objective was to identify contributing factors that can increase falls in the elderly. Preventing residents of a long-term facility from falling is critical for safety. Disabilities reduce autonomy, and cognitive decline, and diminish the elderly's quality of life after falls.

Several interventions have been shown to reduce fall risk including fall education, modifying the environment, vitamin D supplementation if needed, reviewing medication that places residents at risk for falls, and consultation with physical therapists (Casey et al., 2017). The risk of falls in nursing home residents is double compared to those living in a community setting (Botwinick et al., 2016). A fall prevention plan is a requirement, and reassessment is needed to prevent future falls.

The purpose was to educate and introduce an evidence-based fall prevention program to the staff at WMCNH to assist with the reduction of falls and injuries to vulnerable residents. Fall prevention education provides several benefits: prevention awareness, awareness of fall deterrence intervention, and a decrease in fall numbers. Fall prevention education is an inexpensive and valuable tool for decreasing fall incidence.

Goals

The DNP student goals were to:

1. Utilize a fall risk assessment tool to identify risk factors for falls.

2. Standardize an ongoing process to identify patients' risk factors in the care plan.

3. Increase staff knowledge and awareness about fall prevention programs through an education program.

4. Assist nursing staff in providing individualized care plans through education, training, and quality improvement.

5. Employ strategies to decrease the resident falling, and injuries, and maintain ongoing follow-up.

Literature Search

Searching for literature evidence is the first step of evidence-based practice. An online literature search using search engines and databases such as Cumulative Index to Nursing and Allied Health Literature (CINAHL), Cochrane, *Google Scholar*, *Medline*, *PubMed*, and *EBSCO* host. The keywords used were elderly, falls, nursing homes, LTCF, fall injuries, evidenced-based fall programs, fall screening, fall risk factors, and fall risk assessment.

Synthesis of Evidence

Falls are the number one cause of fatal and nonfatal injuries and are costly among the elderly. Sarmiento and Lee (2017) stated that as the population ages in the U.S., it is necessary to integrate fall prevention into routine medical care. STEADI provides health care personnel a guide to implementing a standardized evidence-based fall procedure in different healthcare settings. The STEADI guide helps to screen, assess, and intervene to reduce or minimize falls in the elderly (Lee, 2017). Implementing an evidence-based fall tool in long-term care allows healthcare personnel to review falls more comprehensively and holistically. Evidence-based

strategies can help prevent falls among older patients by utilizing the interventions provided through STEADI.

Crow et al. (2018) state that regardless of the readiness of evidence-based guidelines, healthcare personnel still lack knowledge about falls. Based on recommendations from the American Geriatrics Society, the elderly should be assessed for falls yearly. The appraisal is to use an algorithm initially that includes screening patients for falls and following it up by evaluating the patient's gait and balance.

Phelan et al. (2016) say most falls occur in the elderly due to a combination of risk factors. Falls predispose the elderly to injuries, immobility, loss of autonomy, hospitalization, and death. STEADI has been designated as a free evidence-based instrument to evaluate and manage patients' fall risk.

Stevens et al. (2017) suggested that falls in the elderly are a high priority and realizing valuable procedures to avoid elderly falls is necessary. The AGS/BGS established clinical practice recommendations for conducting a screening that would point out patients at risk for falling, assess the factors that placed the patients at risk of falling, and explain the evidence-based intervention with the care plan for the elderly. STEADI provides health care personnel with the necessary resources to guide them in the screening, assessing, and implementation phases while attempting to reduce falls among the elderly (CDC, 2021).

Sharif et al. (2018) listed risk factors for elderly falls as prior falls, walking assistive devices, improper shoes, lightening, lower extremities weakness, health conditions such as dementia, arthritis, Alzheimer's, multiple sclerosis, dizziness, gait,

and balance disturbances, and cognitive changes. Polypharmacy and psychotropic drugs, specifically cardiovascular medications, place the elderly at increased fall risk. Cameron et al. (2018) identified benzodiazepines, neuroleptics, sedatives, and antihypertensive drugs as extrinsic risk factors. Cognitive impairment, frailty, gender, and age as intrinsic risk factors.

Gusdal et al. (2021) state that risk factors include malnutrition, sarcopenia, and fall risk. Sarcopenia is an increased loss of muscle mass and function associated with decreased mobility, balance, and muscle. Other risk factors are age, gender, fear of falling, low self-efficacy, and multiple comorbidities. Appeadu and Bordoni (2022) said there is a link between mortality, morbidity, and reduced functionality when there is a fall in the elderly. Appeadu and Bordoni (2022) listed risk factors such as a history of falls, "polypharmacy (defined as taking over four medications) or psychoactive drugs, gait difficulty, depression, orthostasis or dizziness, functional limits, age over 80 years, female sex, incontinence, cognitive difficulties, arthritis, diabetes, and pain" (n.p).

In 1991, The Timed Up and Go test (TUG) was formed and used as a fall risk screening tool for community settings (Barry et al., 2014). TUG was inscribed by AGS, BGS, and the National Institute of Clinical Evidence (NICE) as a routine screening test for falls and to assess gait and balance. The tool is easy, quick to perform, identifies individuals at high risk for falls, and facilitates safety interventions if necessary.

Tylman et al. (2021) said the patients performing the TUG are informed to get up from a chair and ambulate three meters (10 feet), turn around, ambulate back to the

same chair, and take a seat. The TUG test evaluates balance and gait and predicts fall risk in the elderly. Buisseret et al. (2020) proposed that the TUG screening tool aims to assess elderly fall risk. The TUG test is an assessment of fall risks that is simple and easy to conduct to reduce or minimize falls by identifying fall risk factors in older adults.

Loonlawong et al. (2022) conducted a study using the TUG and STEADI among 480 individuals aged 65 or older over a one-year cohort study. No information has identified which fall risk screening tools are the best. Recommendations exist that the TUG should not be used alone as a single screening tool. The TUG and STEADI are recommended in combination to offer a standardized, evidence-based approach to reducing falls.

At every patient encounter, screening for falls and risk factors should occur (Cameron et al., 2018). Falls can lead to physical and psychiatric trauma. Falls increase healthcare system burdens due to the costs incurred for E.D., office visits, and treatment.

<center>Framework</center>

"The values we adhere to, whatever they are, frame the approach we take to science, theory, and research" (Zaccagnini & Pechacek, 2021, p. 8). Lewin's Theory of Change was used to conduct this DNP project. According to Zaccagnini and Pechacek, the Change Theory has three parts: "unfreezing, change, and freezing" (p. 299).

According to Wojciechowski et al. (2016), the first step is the unfreezing phase, which is normally met with resistance because individuals are reluctant to

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change. In the first phase, an organization must determine where change is needed, whether it be in a particular member, the company, or a group of people. During this phase, an emphasis should be placed on releasing ideas of the way things used to be done and focusing on upcoming changes. Educating the staff about the proposed change is crucial and stresses the importance that change has on patient outcomes. The DNP student discussed the importance of fall prevention guidelines for the elderly in the long-term care facility.

The next step in Lewin's Change Theory changes. The step is the implementation phase, and predictable results are not always guaranteed. The second step requires planning and proper execution. There will be trial and error in this phase with re-examining after each attempt. Information is shared with those in higher-up positions to include individuals with different expertise. Communication, empowerment, and involvement are key in the second phase (Wojciechowski, 2016). The DNP nurse conducted an educational session for the staff on the fall prevention project, their role in the project, and how to effectively implement the tool. Effective communication is necessary to ensure a successful implementation of change (Zaccagnini & Pechacek, 2021).

The complete transitional phase means the staff is adapting and utilizing the fall prevention guidelines. Following is the freezing phase, the model's final stage. Change becomes permanent in the last phase, and the team accepts the change. The team now relates this to practice. The staff has accepted the new change and adhering to the new policy. By accepting change, the staff is comfortable with the policy.

Mechanisms are set in place to assure these changes are sustained. The organization must offer ongoing training and support during this phase (Wojciechowski, 2016).

Health care is an ever-changing environment but managing this change can be complex and challenging for healthcare facilities. Changes in health care are essential in providing patients with the best care and improving patient outcomes. In this DNP project, the nursing staff must let go of the old behaviors and move toward accepting the new change. The goal is to find a balanced state and support the recent policy/guideline for fall prevention in the long-term facility.

DNP Essentials

The Doctor of Nursing Practice (DNP) prepares nurses for the most advanced level of clinical practice according to Zaccagnini and Pechacek (2021). In clinical practice, the DNP nurse can be in leadership, research, academics, politics, and management. The DNP prepares the nurse to function autonomously if needed and utilize clinical, scientific, and theoretical knowledge for improving health outcomes.

Essential I: Scientific Underpinnings for Practice

Essential I is to use and integrate nursing science and other scientific foundations to use evidence-based practice in clinical settings to promote positive outcomes (Zaccagnini & Pechacek, 2021). This DNP project taught the student how to use my nursing skills to assess the elderly for falls. After reviewing the long-term care facility fall policy, the DNP student decided that it was necessary to develop and implement a fall prevention protocol/guideline in the facility to reduce or minimize falls in the elderly.

Essential II: Organizational and Systems Leadership for Quality Improvement

Essential II is to use a framework to standardize processes and improve the quality measures promoting healthy outcomes and improving care (Zaccagnini & Pechacek, 2021). The DNP student evaluated the facility's current fall prevention policy/protocol and determined it was inadequate to meet the patient's warranted outcome – reduce, prevent, or minimize falls in the residents. The facility had 96 falls in six months with no fatal injuries.

As nurses, we can evaluate current health care practices and healthcare organizations, make appropriate changes, and provide cost-effective quality care both now and in the future. Facilitation of change is necessary as healthcare continues to change rapidly. We were working collectively as a group to achieve the purpose of improving patient outcomes.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

The DNP student performed a scholarly literature review on fall risks in the elderly and presented an evidence-based fall tool (STEADI) to the long-term care facility nursing administrator. The problem of frequent falls in the facility motivated the DNP student to search for a tool to implement to reduce falls in the elderly. Also, the DNP student presented her DNP project poster to her faculty and peers on DNP scholarship day.

Essential V: Health Care Policy for Advocacy in Healthcare

The DNP student was able to educate the facility staff members on the importance of implementing a new evidence-based fall prevention protocol. Protecting the elderly from falls so they will not endure a fatal or nonfatal injury is crucial to their safety.

Healthcare professionals advocate for our patients daily with interdisciplinary team members. The DNP student interacted with the physical therapist to create a care plan for one of the residents who had recently fallen.

Essential VI: Inter-Professional Collaboration for Improving Patient and Population Health Outcomes

The DNP student learned how to collaborate with others in an interdisciplinary team effort to improve patient outcomes. Practical communication skills are necessary when interacting with multidisciplinary teams to care for patients. The DNP student conducted an educational program for the facility staff (RN, LPN, CNA) regarding the need for a new fall protocol to reduce falls in the elderly. The staff and the DNP student worked together to achieve the goal of implementing an evidence-based fall protocol. The DNP student learned to serve as a leader, educator, and trainer to the staff and residents in the facility.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

The DNP student fulfilled this essential requirement by providing knowledge to the facility staff on fall prevention and fall risks in the elderly. The staff and residents will be knowledgeable about factors increasing falls, health care costs, and deaths. An evidence-based fall screening tool and identifying fall risk factors can significantly reduce falls and prevent injuries so that elderly residents can have a quality of life.

Essential VIII: Advanced Nursing Practice

Requirements for Essential VIII have been satisfied; the DNP student educated the long-term care facility staff on fall prevention and fall risk factors. As a future DNP

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family nurse practitioner, I will be an educator, provider, prescriber, coach, mentor, and facilitator, formulate treatment plans, and treat patients according to their illnesses.

Summary

According to Meucci et al. (2019), "decline of physical, cognitive, and affective capabilities, as well as comorbidities and frailty, leave individuals prone to falls" (p. 366). Falls reduction is crucially essential to prevent morbidity and mortality in the elderly. Falls pose a severe risk to the elderly living in LTCF and cause severe injuries and accidental death. A fall prevention plan is required, and reassessment is needed to prevent future falls in LTCF.

CHAPTER II - METHODS

Introduction

According to Sarmiento and Lee (2017), a normal health concern in the elderly is falls, and they lead to devastating consequences. An essential part of being in management is having the ability to identify patients at risk for falls and set measures in place to prevent fall occurrences. Experts recommended that healthcare personnel screen the elderly initially and annually for risks of falling. Fall prevention is a vital healthcare personnel task in hospitals and nursing homes.

The DNP project aimed to increase fall prevention knowledge and awareness amongst staff at a rural Central Mississippi long-term care facility. All adults 65 years and older should have an initial fall risk screening. Assessing the risk factors associated with falls is essential, and screening for a previous history of falls is vital. Increased morbidity and mortality are typical consequences of falls or related injuries in the elderly.

The DNP student educated the nursing staff about fall risk factors and implement an evidence-based fall prevention tool to help reduce injuries, hospitalizations, and deaths. "Falling is not an inevitable result of aging. Through evidence-based interventions, practical lifestyle adjustments, and community partnerships, we can reduce the number of falls" (Murphy, 2012, p. 63). The facility's mission is to improve the quality of life for citizens of Winston County and surrounding counties.

Intervention Plan

The proposed DNP project intervention was to implement an evidence-based fall prevention guideline to screen, assess, and intervene to reduce falls in the long-term care facility. The tools selected for this intervention were the TUG and STEADI. These tools are quick, easy, and simple to assess fall risk factors, gait, and mobility.

The purpose of the DNP student's fall prevention educational program is to increase the staff's knowledge about fall risk factors, prevention awareness, prevention intervention, self-efficacy, and a reduction in the number of falls. An educational program with fall prevention strategies is economical and beneficial in preventing falls. The key is education, communication, development, and implementation.

Educational Intervention

The DNP student administered a fall prevention test before the educational session to the staff. The pretest was to ascertain the staff's pre-existing knowledge of falls, fall risk factors, and fall prevention. The test was composed of eight questions related to elderly falls. The session took place at the project site (WMCNH) and lasted approximately three hours over three shifts. Of fifteen participants who were nurses, only eight participated in taking the pretest.

Once the staff completed the pretest, the DNP student presented the STEADI educational session regarding elderly falls, risk factors, and prevention of falls. STEADI handouts and pamphlets were provided to the staff as a resource. The STEADI toolkit includes tools and resources that offer training and resources to help educate the patient, staff, family members, and others on the disciplinary team on

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implementing fall prevention strategies (CDC, 2022). The staff was allowed to ask questions after the presentation.

After the presentation, the DNP student administered the post-test to the eight nurses. Upon completion of the post-test, both pre and post-tests were graded simultaneously. The passing score for the pre and post-test was 70%.

The STEADI is an evidence-based tool that can be used in any health setting. The tool can help improve healthcare outcomes, decrease healthcare costs, and reduce falls in those residing in an LCTF. STEADI is geared toward individuals 65 and over. Implementing this correctly will benefit the elderly population by decreasing morbidity and mortality.

Design

The study is quantitative descriptive research that involves observing and describing the behavior of subjects without influence. The research study aimed to assess fall prevention in elderly adults in an LTCF. The DNP student presented an educational program educating the staff on implementing the STEADI toolkit to screen, assess, and intervene to identify those at risk for falling and risk factors. The TUG was utilized to determine the functional mobility of the participants.

Setting

An LTCF is in a small rural Central Mississippi town. The WMCNH is a 120-bed facility that currently houses 95 residents. Falls in the facility are common, and the numbers vary monthly, with the most recent falls of 96 in six months. The WMCNH does not have a standardized, evidence-based fall prevention protocol/policy to identify those residents at risk for falls before the incident. An

evidence-based fall prevention tool is needed in long-term care to prevent and reduce falls. With the implementation of an evidence-based fall tool, there will be decreased injuries related to falls, decreased costs, and reduced morbidity and mortality. Winston County's estimated population is 17,700 (U.S. Census Bureau, 2021).

Population of Interest

Convenience sampling consists of five males and five females ages 65-87, an average of 70.6 years old. All the participants were Caucasian. Inclusion criteria were persons aged 65 or older, oriented x3, ambulatory with or without assistive devices, English speaking, and able to sign consent. Exclusion criteria included a history of dementia or Alzheimer's Disease, non-ambulatory, less than 65 years of age, and could not to give written consent.

Instruments

STEADI is an evidence-based tool that was developed in 2012 by the CDC. STEADI includes three parts: screening patients to recognize factors that place the patient at fall risk, assessing the modifiable factors, and the action phase, intervention, to minimize fall risk (Lee, 2017). Screening for fall risk can help identify modifiable risk factors such as gait and balance impairment or inappropriate medication use. Lohman et al. (2017) suggested that the tool predicts high-risk individuals, which indicates predictive variability.

Podsiadlo and Richardson developed the TUG test in 1991 (Nicolimi-Panisson & D'Agostini, 2013). It is s a screening tool used to test the functional mobility skills of elderly patients (60-90 years old). The AGS/BGS recommends TUG as a routine fall screening test (Barry et al., 2014). The TUG score is recorded in seconds; if the

score is greater or equal to twelve seconds, the elderly are at risk. The TUG is

not appropriate for clients with severe cognitive impairments.

The selection of these instruments was appropriate for the DNP project. Each

instrument has a specific purpose in assessing the elderly for falls and fall risk factors.

Strategies may include using a standardized assessment tool to identify fall and injury

risk factors, evaluating an individual patient's risks, and interventions tailored to an

individual patient's overall health status.

Data Collection and Procedure

Before interacting with the participants, the staff assisted the DNP student in

identifying the study participants. The DNP student reviewed each participant chart

for diagnosis, recent or past falls, and medications such as anticonvulsants,

antihypertensives, anticholinergics, muscle relaxant antidepressants, antipsychotics,

benzodiazepines, opioids, and sedative-hypnotics. Their footwear and the use of

assistive devices were assessed before completing any task required.

The CDC STEADI tool was used to screen participants for fall risk and assess

modifiable risk factors. Each participant was approached by the student for

introduction, verified the correct participant, and obtained a set of orthostatic vital

signs. All data collection was collected in the participant room at the LTCF for

privacy purposes.

The DNP student began the data collection process using the Stay Independent

questionnaire that is part of the STEADI tool. The twelve questions are part of the fall

screening process: yes and no responses. If the participant answered yes to four

questions, then they were considered a fall risk. There were three other questions that

could have been used instead of the twelve yes-no questions to assess fall risks. The Centers for Disease Control and Prevention developed the twelve questions listed below:

1) "I have fallen in the past year

2) I use or have been advised to use a cane or walker to get around safely

3) Sometimes I feel unsteady when I am walking

4) I steady myself by holding onto the furniture when walking at home

5) I am worried about falling

6) I need to push with my hands to stand up from a chair

7) I have some trouble stepping up onto a curb

8) I often have to rush to the toilet

9) I have lost some feeling in my feet

10) I take medicine that sometimes makes me feel light-headed or more tired than usual

11) I take medicine to help me sleep or improve my mood

12) I often feel sad or depressed" (CDC, 2017, p. 2).

Participants were scored immediately after the questionnaire. If the participant's score was four or more from the twelve questions, the participant is at risk of falling. The three key questions that could have been used are questions 1, 3, and 5 to equal a score of four.

Once the participants were identified as fall risk, the TUG test was performed. TUG assesses fall risk by focusing on gait, strength, and balance. According to Buisseret et al. (2020), the procedure steps are as follows: patient to sit in a stable

chair that has armrests. The armrests can be used to stabilize the participant during sitting or standing. The equipment needed to perform the TUG test includes an armchair, stopwatch, and ruler stick. The participant began the test by sitting completely at the back of the chair. Three-meter sticks were placed on the floor to designate how far the participants were to ambulate, then return to their seats. The stopwatch was set, and the patient was given the GO command to walk at a regular pace. The timing was stopped after the participant returned to their seat. During the test, the participant wore standard footwear and used an assistive device if required. The test was to be completed by the participants in less than or equal to 12 seconds.

Participants scoring greater than or equal to twelve seconds to complete the TUG test were at risk for falls. Eight of the participants were at risk for falls.

<div align="center">Ethical Considerations</div>

The DNP student received approval from the WMCNH nurse administrator to conduct her DNP project in the facility. The WMCNH nurse administrator did write a letter of support for the student project.

The University of Southern Mississippi Institutional Review Board approved Protocol # 22-1065. Before the beginning of the DNP project, the DNP student explained the student project and gave the participants time to ask questions. Participants were asked to sign a written consent informing them about their role in the DNP project, why it is being performed, expected outcomes, risks, and how the DNP project would be organized. All participants were given written informed consent to participate.

The participants were reassured that their identities would remain confidential and anonymous. No identifying information was collected during the study. There were no anticipated risks to the participants. Participation in the project was voluntary. Documents were placed in a manila envelope and secured in a locked box in the DNP student's home office. No participant information was identified in the dissemination of the findings. After the evaluation of the data completion, all data was destroyed.

<center>Stakeholders and Facilitators</center>

Improving the well-being of nursing home residents is a central aspect of the nursing home culture-change movement (Chisholm et al., 2018). Stakeholders and facilitators are essential people in any organization. A facilitator plans, guides, and manages an organization and will support work in organizations.

Stakeholders engage in the development and interest in clinical decisions. Stakeholders play a significant role in successfully implementing evidence-based guidelines in healthcare. According to Lubbeke et al. (2019), stakeholder support is necessary because they provide the resources, skills, and knowledge required to meet business needs. The critical stakeholders in the healthcare system are the individuals providers manage, doctors, workers in a healthcare setting, insurance agencies, pharmaceutical industries, and the government.

<center>Barriers</center>

The barriers identified by the DNP student while conducting the project were knowledge, education, reluctance to participate, and change. The staff lacked knowledge about the importance of research and how research impacts future

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outcomes and implications in healthcare. Education played a significant role in that the staff was not educated on an evidence-based fall prevention protocol and its importance. The WMCNH's current fall policy has not been changed since 2014. After speaking with the administrator and going over the STEADI tool, her reaction was that the quality improvement nurse could use the tool to help reduce falls in the LCTF. Limited collaboration and teamwork between professions was a barrier to patient fall education.

Data Analysis

Descriptive data analysis is a brief informational coefficient that summarizes a given data set. Descriptive statistics were used to explain demographic data: number of subjects, gender, age, and race. The mean was analyzed for central tendency using descriptive statistics, and variability was analyzed using standard deviation on the pre- and post-tests.

Paired samples t-tests were used to analyze the difference between pre-and post-test scores. Pretest and post-test design is a form of quasi-experimental research that allows for an uncomplicated assessment of an intervention applied to a group of study participants.

A twelve-question questionnaire with yes-or-no responses was administered to the participants (Stay Independent) to assess a fall score. If the score was four or more, the participant was considered at risk for falls.

Summary

The project's significance was educating the staff on an evidence-based fall prevention protocol. The staff's lack of knowledge regarding an evidence-based fall

tool was surprising. Advanced nursing practice is a critical component of efforts to

enhance health care and positive clinical outcomes in the LTCF. The goal was to

introduce an educational program using evidence-based guidelines per the CDC

STEADI and TUG assessments tool. Another goal was to educate the staff on the

importance of reducing falls among the elderly and eliminating mortality and

morbidity. Strategies include utilizing an assessment tool that is uniform throughout

an organization that would identify those at risk for falls and injury, reviewing the risk

factors, and intervening to reduce falls (Sarmiento & Lee, 2017).

CHAPTER III – RESULTS

Introduction

The results were analyzed using descriptive data analysis for this project. At the closure of the project, all data were collected and entered into excel. The project was coordinated at an LTCF in a rural central Mississippi town. The project aimed to determine if the residents at the LTCF were at risk for falls. When those are identified as fall risk, will an evidence-based practice fall prevention guideline, compared to standard fall guidelines, reduce fall risk in elderly patients?

The LTCF fall policy was implemented in 2004, and the last revision was in 2014. The current policy is not an evidence-based fall prevention guideline. During the previous six months, the facility had 96 falls but no serious fatal injuries or death. After listening to the DNP student fall prevention educational program, the nurses were given a pretest before the program and a posttest. The DNP student used the STEADI and TUG instruments to collect data related to fall risks.

Demographics

The sample consisted of ten Caucasians, five men, and five women. The ages ranged from 65 to 87, with a mean of 74. All participants were residents at this LTCF. All participants were wearing appropriate footwear. None of the participants had fallen in the last six months. (See Figure 1 and Figure 2).
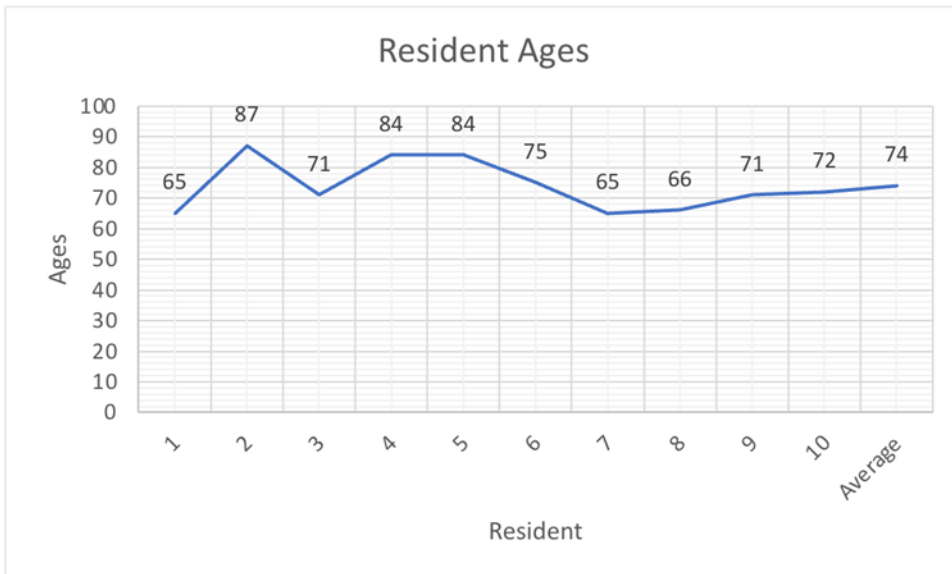
Figure 1. Residents' Age Range.
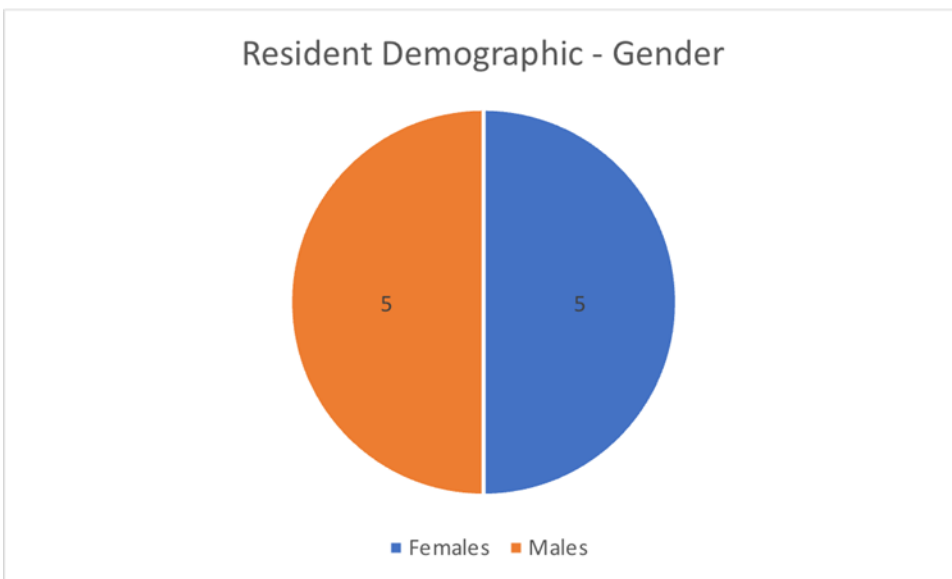
Figure 2. Male to Female Ratio.

Pre- and Post-Fall Test Results

Eight nurses took the pre and post-test, which comprised eight questions about

falls. Based on the pre and post-test results, there was an increase in fall knowledge

after listening to the DNP student STEADI evidence-based fall prevention. The pretest score was 81.6, and the posttest score was 90.8, with an SD of 6.5. (Figure 3)
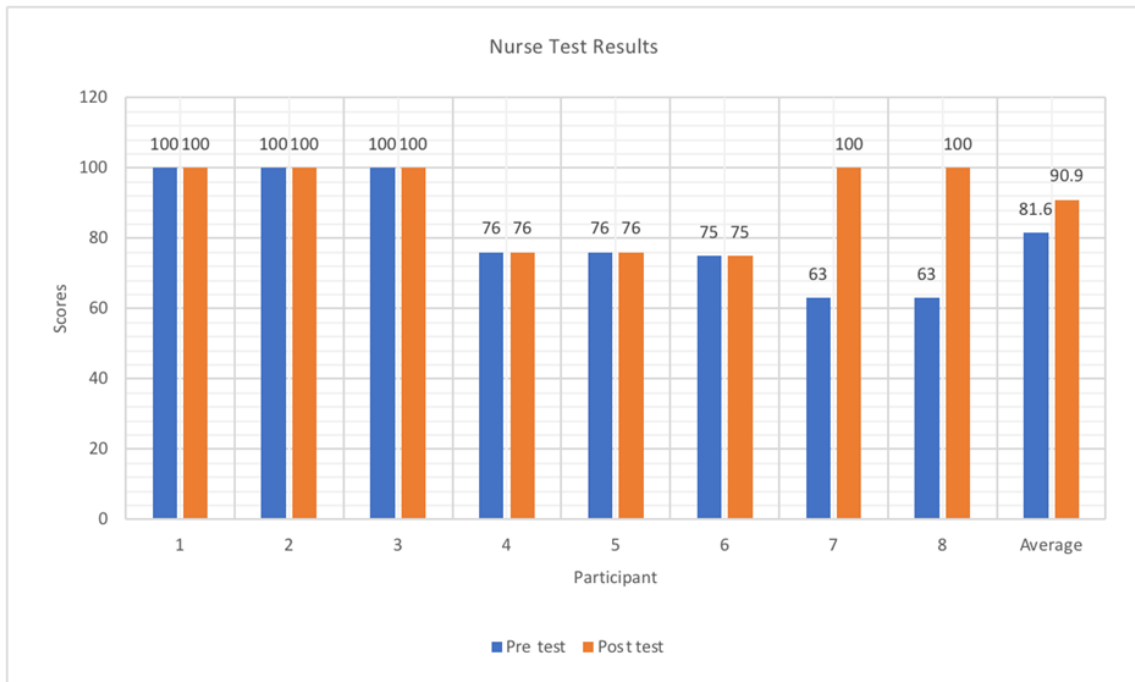
Figure 3. Pre- and Post-Fall Test Results.

Orthostatic Vital Signs

Before any activity, the participant's orthostatic vital signs were taken sitting, lying, and standing. For this study, abnormal orthostatic vital signs were defined as "a sustained reduction in systolic blood pressure of at least 20 mmHg or diastolic blood pressure of 10 mmHg within three minutes of standing after being supine for five minutes" (Ringer & Lappin, 2022, n.p.) or symptoms of dizziness or lightheadedness. None of the participants had a significant change in their blood pressure. (See Table 1).

Table 1

Participant's Orthostatic Blood Pressure Measurement

Resident	LYING	SITTING	STANDING	AVERAGE
A	138/79	135/72	131/70	135/74
B	122/70	118/67	115/63	118/67
C	127/61	123/59	121/56	124/59
D	129/73	125/69	123/67	126/70
E	143/81	139/76	137/75	140/77
F	112/60	109/58	105/55	109/58
G	125/68	121/65	117/60	121/64
H	152/88	151/85	147/81	150/85
I	108/58	105/56	102/53	105/56
J	148/82	144/79	141/67	144/76

Medications

A list of medications was reviewed in the patient chart per the STEADI tool to assess for modifiable risk factors. Medications known to increase an individual's risk of falling from unwarranted side effects include prescription medicines, meds brought from local drug stores, dietary supplements, and simple herbs (CDC, 2020). (See Table 2). No significant or identifiable medications caused any unwanted side effects during the fall assessment study.

Table 2

Medications Listed at Fall Risk with Residents by Alphabet

Medications	A	B	C	D	E	F	G	H	I	J
Anticholinergic										
Anticonvulsant										
Antidepressant	X		X		X	X		X		X
Antipsychotic						X				
Antihypertensive	X				X		X	X		X
Benzodiazepine										
Muscle Relaxant			X		X					
Opioids	X		X		X	X	X		X	
Sedative/hypnotic			X		X		X			X

TUG and STEADI

Each participant was asked twelve questions on the Stay Independent questionnaire tool to evaluate their responses to fall-related questions. Each answer is coded yes or no on the Stay Independent Questionnaire. After reviewing the answers, four participants answered yes to questions 1, 3, and 5, which were key questions according to the CDC STEADI tool. Five participants scored four or more on the questionnaire.

TUG results for the participants averaged 24 seconds in total. The participants were considered a fall risk if they performed the TUG over twelve seconds. If under twelve seconds, then the participant was not considered a fall risk. Ten participants

were screened for fall risk using the Stay Independent questionnaire and the TUG.

One participant passed both the questionnaire and TUG. One participant passed the

TUG but scored four or more on the Stay Independent questionnaire. The remaining

eight participants failed the TUG by taking greater than twelve seconds to perform the

TUG.

Summary

Based on the participants' fall results screening, the DNP student did inform

the quality improvement nurse, charge nurse, and physical therapist of the participants

that failed the TUG and Stay Independent questionnaire. It was decided that the

participants would be evaluated at their quarterly Minimum Data Set screen. Per the

algorithm for fall risk screening, assessment and intervention, the participant should

be followed up in 30 days, review the care plan, discuss and address barriers, if any,

and encourage fall risk reduction behavior.

Due to reluctance to change, lack of evidence-based practice guidelines, and

policy protocol, no changes were implemented for those participants identified as a fall

risk. Three key risk factors that should be addressed to reduce falls are balance,

medications, and safety. It is imperative and urgent that these elderly at risk for falls be

screened and evaluated before their quarterly visit since they have not had a fall yet.

CHAPTER IV – DISCUSSION

Findings

The project's goal was to see if an evidence-based fall risk prevention guideline assists in identifying elderly fall risks compared to the current fall policy. The LTCF's current policy only describes what should be done if a fall occurs. The current policy does not screen or assess the participants for fall risks at all. Screening is done upon initial admission to the facility by physical therapists and performed quarterly for fall assessments. The quality assurance and performance improvement will review the chart quarterly and accordingly to the facility policies.

Interpretations

The nurses' knowledge increased in fall prevention based on the post-test scores. The TUG, STEADI algorithm, and the Stay Independent questionnaire are all beneficial in screening and assessing the elderly for fall risks and risk factors.

Implications for Practice

Reducing falls in long-term care, other healthcare settings, the community, and in the home to decrease morbidity, mortality, hospitalizations, and healthcare costs should create a sense of urgency amongst healthcare providers. When an evidence-based fall tool is executed in these settings, healthcare providers build coalitions to improve health outcomes, form judicious visions, engage volunteers, and remove barriers. Implementing STEADI evidence-based fall prevention protocol in long-term care becomes a shared priority by the healthcare team members and creates long-lasting positive change in the facility. The facility team members (nurses, CNAs,

physical and occupational therapists, stakeholders, and facilitators) have the most significant impact on reducing patient falls.

Implications for Education and Research

Implementing an evidence-based fall tool in long-term care allows healthcare personnel to review falls more comprehensively and holistically. Ott (2018) states that a fall prevention education program provides information regarding fall prevention awareness, intervention, and self-efficacy for the elderly to reduce and prevent falls. The facility nurse educator or quality improvement nurse should educate the staff, family members, and other team members on the importance of an evidence fall protocol.

Research implications would be to devise a standardized fall protocol to be evaluated in facilities to decrease the risk of falls and healthcare costs. High healthcare costs for elderly falls lead to an economic burden on the healthcare system. Engaging patients in decision-making regarding their health and well-being makes them more likely to adhere to recommended fall prevention strategies.

Limitations

Limitations to the study were insufficient sample size, time constraints, and lack of diversity among the participants. All study participants were Caucasian. Due to the time, there was no follow-up to verify if the LTCF adopted or improvised the STEADI tool. The study was small, and only one LTCF participated.

Recommendations

The LTCF recommendation provided to the LTCF by the DNP student was to update the current fall policy to an evidenced-based fall prevention guideline used for

this study. A fall evaluation should be performed if the elderly seek medical attention for a fall or demonstrate a change in status. The evaluation should be performed by a clinician with appropriate skills and experience. Any referral to specialists is necessary for the elderly evaluation.

<center>Conclusion</center>

Falls in the aging population are common and account for one of the most severe issues contributing to a disability. Falls are a significant public health issue associated with increased morbidity and mortality risks. Falls cause over 95% of hip fractures and account for the increased number of traumatic brain injuries in the United States (U.S.). In 2015, nonfatal fall costs were $50 billion, and fatal falls were $754 million. The cost of treating falls in the elderly will increase to over $101 billion by 2030 (NCOA, 2022).

The Stopping Elderly Accidents, Deaths, and Injuries initiative was created by The U.S. Centers for Disease Control and Prevention's National Center for Injury Prevention and Control. The initiative was based on guidelines that had been used by the American Geriatrics Society and British Geriatrics Society (AGS/BGS) to reduce falls. Health behavior theory and an outpouring of input from health care providers were also used to develop the initiative (CDC, 2019). Utilizing the proposed guidelines offers health care providers a conceptual framework for older adult fall prevention (Johnston et al., 2019). STEADI consists of three essential parts: screening patients to recognize factors that place the patient at fall risk, assessing the factors that are modifiable, and the action phase, intervention, to minimize fall risk (Lee, 2017).

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Falls are common and usually result from relations between various fall risk factors (Phelan, 2015). STEADI provides health care personnel with the tools and resources to incorporate fall prevention into a clinical setting. The STEADI tool screens patients to identify their fall risk, assess their modifiable fall risk factors and intervene to reduce fall risk (Lee, 2017). Implementing an evidence-based fall tool in long-term care allows healthcare personnel to review falls more comprehensively and holistically.

Summary

Improving the well-being of nursing home residents is a central aspect of the nursing home culture-change movement (Chisholm et al., 2018). Reducing falls in long-term care, other healthcare settings, the community, and homes to decrease morbidity, mortality, hospitalizations, and healthcare costs should create a sense of urgency amongst healthcare providers. Stakeholders and facilitators are essential people in any organization. Stakeholders engage in the development and interest in clinical decisions. Stakeholders play a significant role in successfully implementing evidence-based guidelines in healthcare. STEADI provides health care personnel with the tools and resources to incorporate fall prevention into a clinical setting.

APPENDIX A – IRB Approval Letter

Office *of* Research Integrity

THE UNIVERSITY OF SOUTHERN MISSISSIPPI.

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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER:	22-1065
PROJECT TITLE:	Implementing an Evidence-Based Fall Tool in Long-term Care Created for Tasha Hannah on 11-Jul-2022 7:33 PM
SCHOOL/PROGRAM	Leadership & Advanced Nursing
RESEARCHERS:	PI: Tasha Hannah Investigators: Hannah, Tasha~Coleman, Carolyn~
IRB COMMITTEE ACTION:	Approved
CATEGORY:	Expedited Category
PERIOD OF APPROVAL:	13-Sep-2022 to 12-Sep-2023

Donald Sacco

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

WINSTON MEDICAL CENTER
Getting Better ... Every Day

SENIOR CARE SERVICES

January 21, 2022

RE: Letter of Support for Tasha Hannah, BSN, RN

Attn: Facility Nursing Research Council Application Process-DNP BSN-DNP Student

To: Nursing Research Council Chair and Committee

This letter is in reference for Tasha Hannah, BSN, RN who is applying to the FGH Nursing Research Council for application and approval of her Clinical Doctoral Project. The focus and title of her evidenced-based project is *Fall Prevention*. The site is in the Long Term Care setting.

I have discussed this topic with Tasha Hannah and support and recommend the need for these Fall Prevention program. I understand that the timeframe for this program.

After data analysis, I understand that Tasha will present her findings to the ID team.

I understand that following approval by the Nursing Research Council, she will seek approval from the University of Southern Mississippi Institutional Review Board (IRB) for final approval of her Clinical Doctoral Project proposal. At present, I understand that Tasha Hannah is a full-time BSN-DNP (Family Nurse Practitioner) student in the Doctor of Nursing Practice Program at the University of Southern Mississippi, Hattiesburg campus.

I am the Administrator at Winston Medical Center Senior Care Services in Louisville, MS. I am offering this letter of support of the doctoral student, Tasha Hannah, in her doctoral project as titled above and look forward to hearing her findings.
I understand that participation by the ID team members is completely anonymous and voluntary. There is no compensation for their participation.
I understand the planned dates are 30 days from USM IRB approval is received.
I understand that letter of support will be included in the University of Southern Mississippi Institutional Review Board (IRB) application.

Her Chair contact information is Dr. Cathy Hughes, RN cathy.hughes@usm.edu and cell

As Administrator of Winston Medical Center Senior Care Services, I would like to fully support Tasha Hannah to achieve her academic endeavor in this clinical practice project. I look forward to hearing the results of this study and the implications on clinical practice.

If there is any other information you should need, please do not hesitate to contact me.

Sincerely,

Lacey Vowell
Administrator
Winston Medical Center Senior Care Services

APPENDIX C – Consents

Nurse Consent

The DNP student will conduct an educational presentation to the nursing staff regarding the project titled Implementing an Evidence-Based Fall Tool in Long-term Care. Prior to the educational presentation, a pretest will be conducted to evaluate the nurse's basic knowledge of falls in the elderly. After completion of the educational presentation, the nurse will complete the post-test to assess their knowledge of falls in the elderly.

After explaining the DNP project, questions will be answered if the nurse has any questions. If the nurse agrees to participate, then a consent form will be signed by the nurse.

I hereby consent to participate in this research. I have had the opportunity to ask questions about the project and its purpose. I have received information about all expected benefits, risks, inconveniences, or discomforts. I understand that my participation is voluntary and that I may withdraw at any time.

Nurse Name_____

Date_____

Person Explaining the Study_____

ASSESSMENT

Timed Up & Go (TUG)

Patient _____

Date _____

Time _____ ☐ AM ☐ PM

Purpose: To assess mobility

Equipment: A stopwatch

Directions: Patients wear their regular footwear and can use a walking aid, if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters, or 10 feet away, on the floor.

① Instruct the patient:

When I say "Go," I want you to:

1. Stand up from the chair.
2. Walk to the line on the floor at your normal pace.
3. Turn.
4. Walk back to the chair at your normal pace.
5. Sit down again.

NOTE: Always stay by the patient for safety.

② On the word "Go," begin timing.

③ Stop timing after patient sits back down.

④ Record time.

Time in Seconds: _____

An older adult who takes ≥12 seconds to complete the TUG is at risk for falling.

OBSERVATIONS

Observe the patient's postural stability, gait, stride length, and sway.

Check all that apply:

☐ Slow tentative pace
☐ Loss of balance
☐ Short strides
☐ Little or no arm swing
☐ Steadying self on walls
☐ Shuffling
☐ En bloc turning
☐ Not using assistive device properly

These changes may signify neurological problems that require further evaluation.

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit www.cdc.gov/steadi

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

2017

STEADI Stopping Elderly Accidents, Deaths & Injuries

RESOURCE

Algorithm
for Fall Risk Screening, Assessment, and Intervention

As a healthcare provider, you are already aware that falls are a serious threat to the health and well-being of your older patients.

More than one out of four people 65 and older falls each year, and over 3 million are treated in emergency departments annually for fall injuries.

The CDC's STEADI initiative offers a coordinated approach to implementing the American and British Geriatrics Societies' clinical practice guideline for fall prevention. STEADI consists of three core elements: **Screen**, **Assess**, and **Intervene** to reduce fall risk.

The **STEADI Algorithm for Fall Risk Screening, Assessment and Intervention** outlines how to implement these three elements.

Additional tools and resources include:

➤ Information about falls

➤ Case studies

➤ Conversation starters

➤ Screening tools

➤ Standardized gait and balance assessment tests (with instructional videos)

➤ Educational materials for providers, patients, and caregivers

➤ Online continuing education

➤ Information on medications linked to falls

➤ Clinical decision support for electronic health record systems
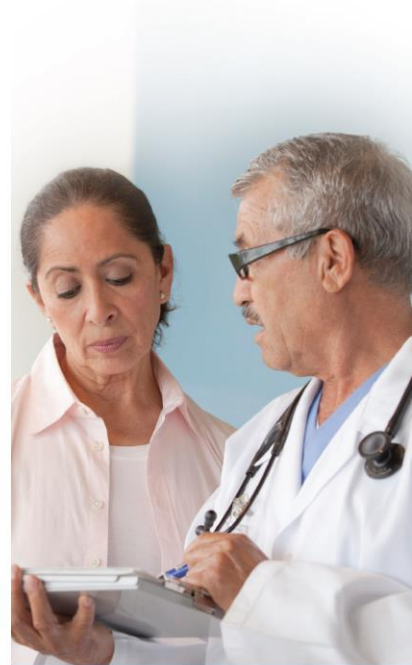
You play an important role in caring for older adults, and you can help reduce these devastating injuries.

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit www.cdc.gov/steadi

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

2017

Algorithm for Fall Risk Screening, Assessment, and Intervention

START HERE ▷ Patient completes the *Stay Independent* brochure

Screen for fall risk

Patient scores ≥ 4 on the *Stay Independent* brochure

—— **OR** ——

Clinician asks key questions:
- Fell in past year?
  - If **YES** ask, How many times? Were you injured?
- Feels unsteady when standing or walking?
- Worries about falling?

Score < 4 —— **OR** —— **NO** to all questions

Score ≥ 4 —— **OR** —— **YES** to any key question

Evaluate gait, strength, & balance
- Timed Up & Go (recommended)
- 30-Second Chair Stand (optional)
- 4-Stage Balance Test (optional)

No gait, strength or balance problems*

Gait, strength or balance problem

≥ 2 falls   1 fall   0 falls

Injury   No injury

LOW RISK
Individualized fall interventions
- Educate patient
- Vitamin D +/- calcium
- Refer for strength & balance exercise (community exercise or fall prevention program)

MODERATE RISK
Individualized fall interventions
- Educate patient
- Vitamin D +/- calcium
- Refer to PT to improve gait, strength, and balance

—— **OR** ——

- Refer to a community fall prevention program

Conduct multifactorial risk assessment
- Review the *Stay Independent* brochure
- Falls history
- Physical exam, including:
  - Postural dizziness/ postural hypotension
  - Medication review
  - Cognitive screening
  - Feet & footwear check
  - Use of mobility aids
  - Visual acuity check

HIGH RISK individualized fall interventions
- Educate patient
- Vitamin D +/- calcium
- Refer to PT to enhance functional mobility & improve strength & balance
- Manage & monitor hypotension
- Manage medications
- Address foot problems
- Optimize vision
- Optimize home safety

Follow up with HIGH RISK patient within 30 days
- Review care plan
- Assess & encourage fall risk reduction behaviors
- Discuss & address barriers to adherence

—————————

Transition to maintenance exercise program when patient is ready

LOW RISK

MODERATE RISK

HIGH RISK

*For these patients, consider additional risk assessment (e.g., medication review, cognitive screen, syncope).
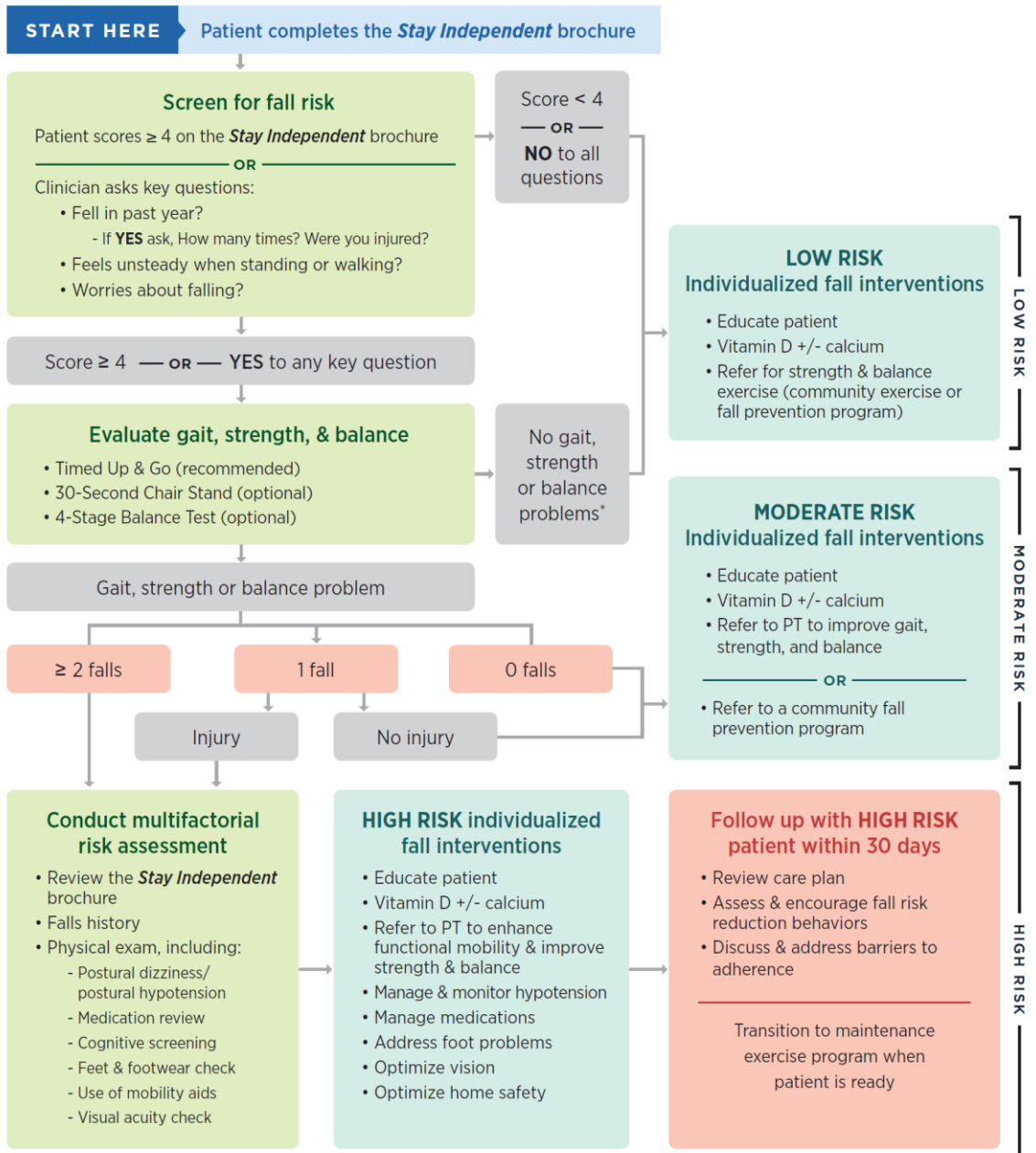
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STEADI Stopping Elderly Accidents, Deaths & Injuries

2017

Falls

Pre-test Questions

<u>Easy</u>

1. Which of the following is a risk factor for falls in the elderly?

    a. Visual impairment

    b. Decreased bone mineral density

    c. Poor dental care

    d. (a) and (c)

2. What does the "Get Up and Go" method of fall risk assessment involve?

    a. Accompanying the patient to the home environment, to assess safety

    hazards

    b. Recording the time a patient takes to walk with 5-lb ankle weights back

    and forth over a distance of 10 meters

    c. Evaluating a patient's dexterity and balance with placing a small object

    into a box from ground level

    d. Evaluating the time a patient takes to rise out of a chair, walk 10 feet, turn

    around, walk back, and sit back down

3. What is the estimated direct cost of falls among the elderly?

    a. $10 million

    b. $100 billion

    c. $500 million

    d. $19 billion

1. An 87-year-old woman comes into your musculoskeletal clinic with a complaint of R shoulder pain. She says that she fell 3 days ago at home while walking out of her bedroom. She landed on her R shoulder and denies hitting her head. Your patient says she might have slipped on a rug, but she doesn't remember. She has a past medical history of type 2 diabetes with peripheral neuropathy, hypertension, and osteoarthritis. She takes glipizide for her diabetes, lisinopril for her hypertension, amitriptyline for neuropathy, and acetaminophen as needed for joint pain. On exam, her postural vital signs are unremarkable. An evaluation of her gait shows her to have some mild swaying on ambulation only. Which of these would be a good first step to decrease her risk of repeat falls?

   a. Recommend the purchase of hip protectors

   b. Start an exercise program directed by your physical therapist

   c. Lower her dose of glipizide

   d. Change amitriptyline to another drug for neuropathy

2. Which of the following is true regarding falls in the elderly?

   a. A patient should not use a walker to ambulate if their motor strength is intact

   b. Hip fractures are not the most frequent type of fall-related fractures

   c. A motorized scooter is a better option to prevent falls in the elderly

   d. Medication use may contribute to increased fall risk

3. True or false: Patients who fall, even if they are uninjured, are at risk of
   another fall.

   a. True

   b. False

<u>Difficult</u>

1. A 78-year-old woman has scored 20 out of 30 on her Mini-Mental State
   Examination. True or false: This patient is at high risk of falls.

   a. True

   b. False

2. A 74-year-old woman with a history of recurrent falls is seen in your clinic
   with her daughter. She also has a history of mild dementia, congestive heart
   failure, coronary artery disease, and hypertension. She takes furosemide,
   lisinopril, aspirin, metoprolol, olanzapine, and simvastatin. She lives by
   herself in an apartment she has lived in for 40 years and has helped with
   housekeeping once a week. Her physical examination is remarkable for
   decreased proximal lower-extremity muscle strength. Which of the following
   is NOT an evidence-based intervention for decreasing her risk of falling?

   a. Discontinuing furosemide

   b. Balance and gait training exercises

   c. Initiating donepezil

   d. Discontinuing olanzapine

Check Your Risk for Falling

	Circle "Yes" or "No" for each statement below		Why it matters
Yes (2)	No (0)	I have fallen in the past year.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
Total		Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling.	

This checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein et al. J Safety Res; 2011: 42(6)493-499). Adapted with permission of the authors.

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